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COORDINATING COMMITTEE

RECORD OF DISCUSSION

ON

ITEM 1501 - COMMUNICATIONS, NAVIGATION, DIRECTION FINDING AND RADAR EQUIPMENT

2nd, 3rd, 13th and 17th November, 1959

Present: Belgium(Luxembourg), Canada, France, Germany, Italy, Japan, Netherlands, United Kingdom, United States.

References: COCOM Docs. Nos. 3700.1, 2 and 5, 3715.00/1, W.P. 1501/1 to 3.

1. Heading — The UNITED KINGDOM Delegation suggested that the following clause should be added:

> "excluding Instrument Landing System (ILS) or other equipment of equivalent characteristics and performance."

The Committee noted that this redefinition could only be discussed once agreement had been reached on the contents of the various sub-items. The UNITED STATES Delegation stated that this equipment certainly fell under Item 1501.

Part (a) — The UNITED KINGDOM Delegation suggested that the Note be deleted and that sub-items (1), (2), (5) and (6) be retained. This part would thus read:

> "Airborne communication equipment and specialised parts and components therefor, with any of the following characteristics:
> (1) Designed to operate at frequencies greater than 156 Mc/s;
> (2) Designed for Single Side Band Operation;
> (3) Pressurised by any method;
> (4) Rated for operation over a range of ambient temperatures extending from below -45°C. to above +75°C.

Note — The UNITED KINGDOM Delegation proposed that this Note be deleted.

The UNITED STATES Delegation objected to this proposal in the belief that what were at present exceptions would become the rule, and thus give rise to an uncontrollable increase in exports of equipment which the United States still considered to be strategic from the point of view both of end-use and of the technological know-how it embodied.

The NETHERLANDS Delegation were likewise opposed to this proposal since they believed on the one hand that the techniques involved should be safeguarded, and on the other that the equipment concerned was used mainly for military purposes.

The GERMAN Delegation, while agreeing with the aim behind the United Kingdom proposal, also feared that pure and simple deletion of the Note would lead to a dangerous increase in the volume of exports of the equipment involved. They therefore reserved their position.

sub-items (a)(1) and (a)(2) As no proposal had been submitted for those sub-items, they would remain unchanged.

sub-item (a)(3) The UNITED KINGDOM Delegation proposed that this sub-item be deleted.

This proposal, supported by the GERMAN Delegation, was rejected by the NETHERLANDS and UNITED STATES Delegations. The latter objected on the grounds that this type of equipment had wide military uses and that there was no reason why Soviet civil aircraft needed more than 130 to 140 channels as recommended by the I.C.A.O.

The GERMAN Delegate suggested as a compromise that the number of channels indicated in this sub-item be increased to 360.

The ITALIAN Delegation agreed to this proposal. The UNITED STATES Delegation were likewise ready to agree to it if the channels were within the frequency range of 118 to 136 Mc/s.

The UNITED KINGDOM Delegation wished to study the German proposal but indicated that they would have preferred a cut-off of 1,000 channels.

The FRENCH Delegation found the German proposal to be a reasonable one.

sub-item (a)(4) The UNITED KINGDOM Delegation proposed that this sub-item be deleted.

The positions of Delegations are identical with those indicated for sub-item (a)(3).

sub-item (a)(5) As no proposal had been submitted for this sub-item, it would remain unchanged.

sub-item (a)(6) The UNITED STATES Delegation suggested that the temperature cut-offs indicated in this sub-item be changed as follows:

"... extending from below -40°C. to above +55°C."

The NETHERLANDS Delegation agreed to the United States proposal but asked that the word "continuous" be added before the word "operation".

The United States proposal as amended by the Netherlands Delegation was accepted by all Delegations except the French Delegation, who requested that these temperature ranges be made uniform with the C.C.I.R. ranges.

Part (b)

sub-item (b)(1) As no proposal had been submitted for this sub-item, it would remain unchanged.

sub-item (b)(2) The UNITED KINGDOM Delegation proposed the deletion of the Note and the addition of the following exclusion clause:

"....except:
(i) Equipment designed to make use of hyperbolic grids based on the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves of frequencies less than 3.0 megacycles per second.
(ii) Very High Frequency Omni Range (V.O.R.) or other equipment of equivalent characteristics and performance.

(iii) Distance Measuring Equipment (D.M.E. or D.M.E.T.) or other equipment of equivalent characteristics and performance."

Note — The UNITED KINGDOM Delegation suggested that this Note be deleted.

The positions of Delegations are identical with those indicated for the Note to part (a).

sub-item (2)(i) of the United Kingdom proposal — The NETHERLANDS and UNITED STATES Delegations objected to this proposal in the belief that, if the present Note were withdrawn, it would be impossible to limit the volume of exports of this equipment for which there could be no assurance that its uses in the Soviet Bloc would be mainly civilian. The GERMAN Delegation were in favour of the principle behind the United Kingdom proposal, but wished to revise the form in which it was put.

sub-item (2)(ii) of the United Kingdom proposal — The UNITED KINGDOM Delegation agreed to delete the words "or other equipment of equivalent characteristics and performance."

This amended version of the proposal was accepted by all Delegations, the UNITED STATES Delegation agreeing ad referendum.

sub-item (2)(iii) of the United Kingdom proposal — The UNITED STATES Delegation objected to this proposal, the equipment covered by this sub-item being, in their view, used mainly on military aircraft.

sub-items (b)(2) and (b)(4) — The GERMAN Delegation thought that these two sub-items overlapped and offered to clear this point up with the experts of other Delegations.

sub-item (b)(3) — As no proposal had been submitted for this sub-item, it would remain unchanged.

New sub-item (b)(5) — The UNITED KINGDOM Delegation proposed that a sub-item should be added reading as follows:

"Pressurised by any method."

This proposal was accepted by all Delegations except the FRENCH Delegation, who submitted the following counter-proposal:

"Pressurised throughout."

The French counter-proposal was accepted ad referendum by the JAPANESE and UNITED STATES Delegations.

New sub-item (b)(6) — The UNITED KINGDOM Delegation proposed that a sub-item be added reading as follows:

"Rated for operation over a range of ambient temperatures extending from below -45°C. to above +75°C."

The UNITED KINGDOM Delegation agreed that the same temperature range as that indicated in sub-item (a)(6), i.e.:

"temperatures extending from below -40°C. to above +55°C."

should appear in this sub-item, and the proposal was then accepted by all Delegations except the FRENCH Delegation, who requested that these temperature ranges be made uniform with the C.C.I.R. ranges.

Part (c) — As no proposal had been submitted for this sub-item, it would remain unchanged.

Part (d)

Heading The UNITED STATES Delegation proposed that it be redefined as follows:

"Ground, marine radar and direction finding equipment....."

The COMMITTEE noted that this redefinition could not be discussed until agreement had been reached on the contents of the sub-item.

sub-item (d)(1) The GERMAN Delegation suggested that this sub-item be redefined as follows:

"Radar equipment, n.e.s., having a pulse frequency of 1000 c/s or more, or in the case of lower pulse frequency a peak output power to the axial system less than 50 KW."

The UNITED KINGDOM Delegation suggested that this sub-item be redefined as follows:

"Radar equipment, n.e.s., other than those normal equipments designed for pulse operation at frequencies between 1,300 Mc/s and 1,660 Mc/s, 2,700 Mc/s and 3,900 Mc/s or 8,500 Mc/s and 10,000 Mc/s, having in the case of marine radar, a peak output power to the aerial system not greater than 75 KW or, in the case of ground-based radar, having a peak output power to the aerial system not greater than 50 KW and a range not greater than 50 nautical miles.

NOTE: The 50 nautical miles range is intended to refer to the maximum useable range on the largest size heavier-than-air target."

The UNITED STATES Delegation agreed to the United Kingdom proposal. The NETHERLANDS Delegation likewise preferred the United Kingdom proposal to which they wished to add the following:

"and having a pulse frequency of 1,000 c/s or less."

The UNITED KINGDOM Delegation undertook to study the Netherlands redefinition proposal.

The COMMITTEE moreover agreed to amend the Note this sub-item to read:

"The 50 nautical miles range is intended to refer to the maximum useable range on a target of 100 sq.m.

sub-item (d)(2) The UNITED STATES Delegation suggested that this sub-item be amended as follows:

"Radar equipment incorporating permanent Echo Cancellation facilities and/or aerials employing multiple polarisation."

The UNITED KINGDOM Delegation suggested that the following clause be added:

"but excluding variable plane polarisation systems."

The UNITED STATES Delegation proposed that in order to meet both objectives the following wording be added to the present text:

"other than those employing fixed single plane or non-automatic variable plane polarisation."

The NETHERLANDS Delegation agreed with the latter proposal, but suggested that this sub-item be divided into two parts, the first relating to equipment incorporating permanent Echo Cancellation facilities, and the second polarisation systems.

The UNITED KINGDOM Delegation agreed in principle to the separating of this sub-item into two parts, but reserved their position as to the wording of the second part.

The COMMITTEE, consequent upon a meeting of the Technical Working Group, agreed to amend the second part of this sub-item to read:

"Radar equipment incorporating aerial systems for other than linear polarisation."

sub-item (d)(3) As no proposal had been submitted for this item it would remain unchanged.

sub-item (d)(4) The UNITED KINGDOM Delegation proposed that this sub-item be deleted.

The GERMAN Delegation suggested that this sub-item be redefined to read:

"Ground direction finding equipment operating at frequencies greater than 30 Mc/s and short time direction finding equipment with direction display on a cathode-ray tube."

The German Delegate was nevertheless ready to agree to the United Kingdom proposal.

The ITALIAN and JAPANESE Delegations agreed to the United Kingdom proposal but were ready to accept the German proposal if it constituted a compromise acceptable to all.

The UNITED STATES Delegation were in favour of the German proposal which they felt should be given further study. The NETHERLANDS Delegation agreed to this proposal.

After a meeting of the Technical Working Group, all delegations agreed ad referendum to the following wording suggested by the FRENCH Delegation:

"Ground direction finding equipment utilising systems other than loop or Adcock types."

Part (e) The UNITED KINGDOM Delegation proposed that the Note to this sub-item be deleted and the following exclusion clause added:

".....except:
(i) Equipment designed to make use of hyperbolic grids based on the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves of frequencies less than 3.0 megacycles per second.
(ii) Very High Frequency Omni Range (V.O.R.) or other equipment of equivalent characteristics and performance.
(iii) Distance Measuring Equipment (D.M.E. or D.M.E.T.) or other equipment of equivalent characteristics and performance.

The COMMITTEE noted that the problem involved here was similar to that arising in the case of sub-item (b)(2). All Delegations moreover agreed on the need to exclude ground direction finding equipment explicitly both from this sub-item and from sub-item (b)(2).

Part (f) The UNITED KINGDOM Delegation suggested that this sub-item be redefined by adding the wording underlined below:

"Specialised parts, specialised accessories, specialised testing or calibrating equipment and training or simulating equipment, n.e.s., for the apparatus listed in (b) to (e) above.

All delegations, except the FRENCH Delegation, agreed to this redefinition.

2. On the 3rd November, the GERMAN Delegation submitted the overall redefinition proposal set out below. This proposal, in the view of the German Delegate, took account on the one hand of the technical discussions held in the Sub-Committee and, on the other, of the United Kingdom Delegation's desire to delete the Notes appearing in the present definition, and finally, by introducing the notion of a time cut-off, ensured qualitative control of exportable equipment.

"Communication, navigation, direction finding and radar equipment, n.e.s., as follows:

(a) Airborne communication equipment and specialised parts and components therefor,
except equipment of types and series in civilian use for at least two years and containing none of the following characteristics
(1) Designed to operate at frequencies greater than 156 Mc/s;
(2) Designed for Single Side Band Operation;
(3) Incorporating facilities for the rapid selection of more than 360 channels;
(4) Pressurised by any method;
(5) Rated for operation over a range of ambient temperatures extending from below -40°C. to above +55°C.

(b) Airborne navigation equipment and direction finding equipment, as follows:
(1) Designed to make use of "Doppler" frequency phenomena;
(2) Utilising the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves having frequency less than 4×10^{14} cycles per second (0.75 microns);
except
(i) Equipment designed to make use of hyperbolic grids based on the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves of frequencies less than 3.0 megacycles per second.
(ii) Very High Frequency Omni Range (V.O.R.)
if they are of types and series in civilian use for at least two years
(3) Pulse modulated altimeters;
(4) Direction finding equipment operating at frequencies greater than 5 Mc/s;
(5) Pressurised by any method;
(6) Rated for operation over a range of ambient temperatures extending from below -40°C. to above +55°C.

(c) Airborne radar equipment.

(d) Ground and marine radar and direction finding equipment, as follows:
(1) Radar equipment, n.e.s., other than those normal equipments designed for pulse operation at frequencies between 1,300 Mc/s and 1,660 Mc/s, 2,700 Mc/s and 3,900 Mc/s, or 8,500 Mc/s and 10,000 Mc/s, having in the case of marine radar, a peak output power to the aerial system not greater than 75 KW or, in the case of ground-based radar, having a peak output power to the aerial system not greater than 50 KW and a range not greater than 50 nautical miles.
NOTE: The 50 nautical miles range is intended to refer to the maximum useable range on a target of 100 sq.m.

(2) Radar equipment incorporating permanent Echo Cancellation
(3) Radar equipment incorporating antennae systems for other than linear polarisation
(4) Radar equipment utilising other than conventional pulse modulation and signal processing techniques
(5) Ground direction finding equipment utilising systems other than loop or Adcock types.

(e) Ground and marine equipment for use with airborne navigation equipment utilising the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves having frequency less than 4×10^{14} cycles per second (0.75 microns) except
(i) Equipment designed to make use of hyperbolic grids based on the constant velocity and/or the rectilinear propagation characteristics of electromagnetic waves of frequencies less than 3.0 megacycles per second
(ii) Very High Frequency Omni Range (V.O.R.)
if they are of types and series in civilian use for at least two years.

(f) Specialised parts, specialised accessories, specialised testing or calibrating equipment and training or simulating equipment, n.e.s., for the apparatus listed in (b) to (e) above.

3. The various delegations agreed to submit this proposal to their authorities. The UNITED KINGDOM Delegation suggested that D.M.E. equipment be added to parts (d) and (e).

4. On the 13th November, the UNITED KINGDOM Delegation explained that the German proposal constituted the maximum restriction which their Government could accept. The ITALIAN Delegation agreed to this proposal ad referendum.

5. The UNITED STATES Delegation stated that they were unable to agree to the changing of the Notes into exclusion clauses as was the case in the overall German proposal.

CONCLUSION: The COMMITTEE noted that agreement had not been reached on Item 1501, and agreed to resume study of it during the second round of discussion.